A NEW *SELENOPHORUS* (COLEOPTERA: CARABIDAE) FROM THE RIO GRANDE IN TEXAS[1]

Foster Forbes Purrington[2]

ABSTRACT: *Selenophorus chaparralus* n. sp. is described from Val Verde, Zapata, and Cameron Counties on the lower Rio Grande of Texas. The male is distinguished by a pair of carinate prominences positioned bilaterally on the disc of abdominal sternum VII.

In North America north of Mexico, the New World genus *Selenophorus* Dejean (Coleoptera: Carabidae: Harpalini) presently contains 38 species arranged by Bousquet and Larochelle (1993) in three informal groups. The largest, their *palliatus* group of 28 species, subsumes two of Lindroth's groups, *opalinus* and *palliatus*, that together keyed only nine current *Selenophorus* species (Lindroth 1968). As Lindroth commented, a review of the North American species would imply an interesting task, for which we await a pending modern revision by George E. Ball (pers. comm., G.E. Ball).

In Casey's (1914) key to genera of Selenophorini, *S. chaparralus* n. sp. goes to *Hemisopalus* (type *S. opalinus* LeC.) and thence to *H. opalinus*, that differs, *inter alii*, by being much larger, and to *H. perpolitus* Csy., with only a faint elytral iridescence.

In America north of Mexico, *Selenophorus* is more diverse in the southern United States, especially from North Carolina to Florida, through the Gulf states and into Arizona. Six species are recorded from Canada; none are known from California (Bousquet and Larochelle 1993). Many appear to be xerophilous and occur on sandy soils (Lindroth 1968).

Micrographs were obtained with an ISI-40 scanning electron microscope. Measurement of length follows Kavanaugh (1979) who measured apparent body length (ABL) from apex of mandible to apex of elytron.

In reference to the numbering of abdominal sterna of this beetle, I note that in Coleoptera, sternum II is basalmost, sternum I evidently having been lost from the ancestral coleopteran stock (as determined by the lack of a sternum to match abdominal tergum 1). Thus, with six pregenital sterna (i.e., those exposed when the male is not *in copulo*, or a female is not ovipositing), the last one is abdominal sternum VII. Imms (1948) states that in most (adult) insects the first abdominal segment, and especially its sternum, is reduced or vestigial.

In Lindroth's key to *Selenophorus* Dejean, *S. chaparralus* n. sp. will run to couplet 4. The new species is accommodated by going to a new couplet 3a., inserted after couplet 3., as follows:

---

[1] Received May 13, 1999. Accepted July 16, 1999.

[2] Department of Entomology, The Ohio State University, 1735 Neil Avenue, Columbus, OH 43210.

3a. Abdominal sternum VII of male with a pair of carinate prominences. Texas ..... *S. chaparralus* n. sp.
Abdominal sternum VII of male without prominences 4

Selenophorus chaparralus Purrington, NEW SPECIES

Recognition: This is the only *Selenophorus* bearing paired carinate prominences on the last visible abdominal sternum of the male.

Description: Holotype male. Total length (ABL) 8.0 mm. **Color.** Dorsal forebody ferrugineous, antennae testaceous, labrum orange, also mandibles but their apices piceous, contrasting, palpi testaceous; legs testaceous except coxae rufescent; entire underbody ferrugineous; elytra piceus, except base anteriad to margin, scutellum and epipleurae rufescent. **Luster.** Entire dorsal surface very shining; forebody not iridescent, elytra with pronounced iridescence, ventral surfaces very slightly iridescent. **Microsculpture.** Absent from head except labrum with well-defined slightly transverse meshes, irregular transverse meshes on anterior edge of clypeus and behind eye in vicinity of supraorbital seta; absent from pronotum; dense microlines on elytral intervals; all striae (including the broad stria 9 lying mesad of the lateral bead) with granulate isodiametric meshes; ventral surfaces without microsculpture except some shallow microlines and transverse meshes on genae and abdominal sterna. **Head.** Head rather small; eyes moderate in size; frontal foveae deep; antennal scape and pedicel with sparse scattered short pubescence; labrum with concave anterior margin; labial mentum edentate. **Thorax.** Pronotum slightly broader than long, widest slightly before middle, sides evenly arcuate; anterior angles produced; basal bead entire; hind angles broadly rounded; median sulcus impressed but not extended to base or front margin; posterolateral impressions shallow, linear, divergent anteriorly, separated from corners by a broad shallow convexity and marked with weak rugose punctation. Prosternum with intercoxal process unmargined. **Elytra.** Striae rather wide with dull granulate floors, parascutellar striae short but distinctly impressed, with setigerous puncture at base; intervals convex with irregular micropunctulae; seriate setigerous punctures on interval 3 very near stria 2, on interval 5 near stria 5, on interval 7 near stria 7; setigerous umbilicate puncture series widely separated into 6 anterior and 9 posterior; subapical sinuation distinct; humerus subangulate and lacking a tooth; apex and base with sparse short pubescence. **Abdomen.** Abdominal sternum VII of male ventrally with a pair of carinate prominences positioned bilaterally on the disc as in Fig. 1. **Genital armature.** Median lobe of aedeagus long: 3mm; apical 1/5 angled abruptly right as in Fig. 2; basal 1/5 curved left; shaft inflated near middle with 2 parallel longitudinal swollen ridges, left ridge subcarinate, dorsal ridge smoother; surfaces of the swollen midsection of median lobe with longitudinal rugulosity as in Fig. 3; apex with a well-developed approximately horizontal disc bearing a hook-like anteriorly directed termination on its left margin as in Fig. 2; membranous zone occupying the right apical 1/5; internal sac without armature.

Type Series. HOLOTYPE, male: "Val Verde Co. TEX, Amistad Reservoir, 19-III-98 F.Purrington//AMIS-259: 913//Holotype Selenophorus chaparralus Purrington 1999", deposited in the U.S. National Museum (USNM), Washington, D.C. Seven PARATYPES, sex and label data as follows: 1 female, same as holotype except "Amis-259: 914", deposited in the USNM. 1 male, 1 female: "Port Isabel, Tex., X-20-'49 O.Bryant//Collection of the California Academy of Sciences, San Francisco, Calif." (Cameron County), deposited in the California Academy of Sciences, San Francisco, California. 1 male, 3 females: "Texas:Zapata County//Falcon State Park//15-X-1985//Robert Davidson and John Rawlins", deposited in the Carnegie Museum of Natural History, Pittsburgh, Pennsylvania.

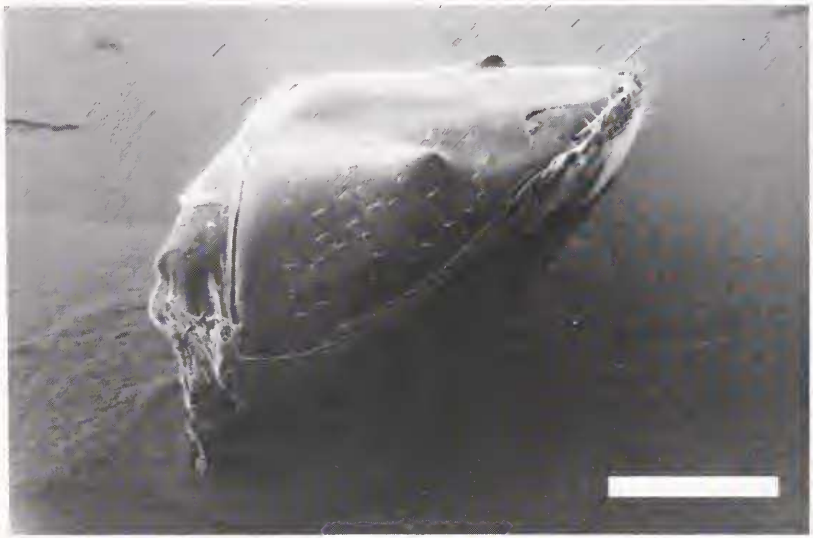

Figure 1. *Selenophorus chaparralus* Purrington, n. sp., HOLOTYPE ♂: scanning electron micrograph of last visible abdominal sternum AB-VII, right ventral aspect. Scale bar = 0.5 mm.

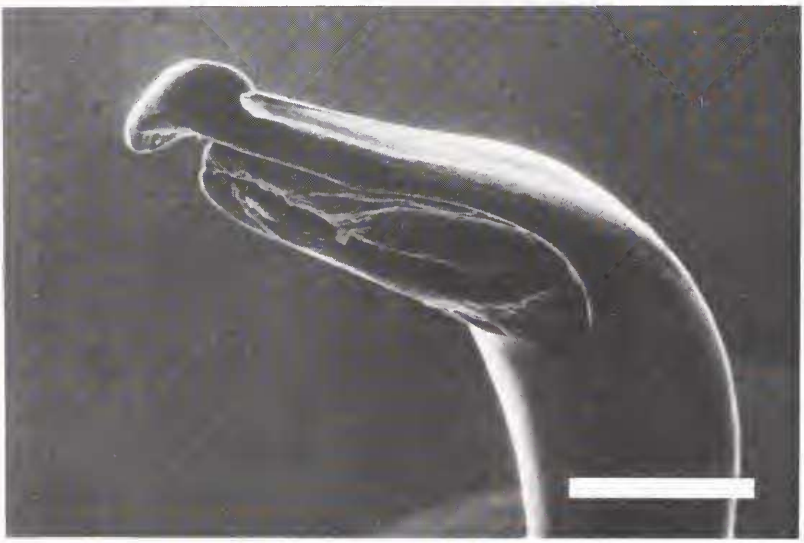

Figure 2. *Selenophorus chaparralus* Purrington, n. sp., HOLOTYPE ♂: scanning electron micrograph of aedeagus median lobe, ca. distal 1/3, dorsal posterior aspect showing apical disc and membranous aperture that accommodates eversion of the internal sac. Scale bar = 0.25 mm.

Figure 3. *Selenophorus chaparralus* Purrington, n. sp., HOLOTYPE d: scanning electron micrograph of aedeagus median lobe mid-length rugulosity, left aspect. Scale bar = 0.1 mm.

Etymology: From the Tamaulipan chaparral plant association that characterizes the type locality.

Notes. The holotype is missing the right maxillary palpomere 4; its genitalia and sternum AB-VII are removed and glued on a card point; the sternum was platinum-coated in preparation for electron microscopy, which contributes a slight metallic luster artifact.

Habitat. The holotype and the female paratype from Val Verde County were collected under a small rock in a dry grassy acacia savanna upland ca. 1 km from the Amistad Reservoir shoreline at San Pedro campsite, Amistad National Recreation Area. Average annual precipitation (1965-1994) is 50.3 cm (Garwood 1996). Floristic elements from the Chihuahuan Desert, the Tamaulipan Chaparral and the Edwards Plateau intersect in the Amistad Reservoir area (Shelford 1963), and this perhaps reflects the potential for unique faunal associations and moisture-driven vicariance mechanisms that characterize desert ecosystems (Erwin 1996, Williams et al. 1985, Hendrickson and Minckley 1985, Minckley 1984). These circumstances, combined with low systematic collection effort on this daunting terrain, make it not altogether

surprising to discover a well-differentiated unknown ground beetle species of a genus familiar to southwestern United States aridlands.

ACKNOWLEDGMENTS

George E. Ball, University of Alberta, Edmonton, encouraged this description in anticipation of his planned revision of the genus, and I greatly appreciate his perspicacity and confidence. He also checked the holotype male of this new species against several *Selenophorus* types in his possession to ascertain its distinctiveness. I thank Charles A. Triplehorn of my Department for sharing taxonomic insights, Robert L. Davidson, Carnegie Museum of Natural History, Pittsburgh, for his generous help with advice on taxonomic conundrums, and David J. Horn of my Department for commenting on an early draft and for his continuing support. Robert E. Whitmoyer, Director of the Electron Microscope Laboratory, Ohio Agricultural Research and Development Center, Wooster, prepared the SEM micrographs; Jose G. Diaz, Department of Evolution, Ecology, and Organismal Biology (Ohio State University), prepared the plates. David H. Larson and Bill Sontag, National Park Service, permitted my research at Amistad National Recreation Area.

LITERATURE CITED

Bousquet, Y. and A. Larochelle. 1993. Catalogue of the Geadephaga (Coleoptera: Trachypachidae, Rhysodidae, Carabidae including Cicindelini) of America north of Mexico. Mem. Entomol. Soc. Can. No. 167, 397 pp.

Casey, T. L. 1914. Memoirs on the Coleoptera. V. The New Era Printing Co., Lancaster, PA, 387 pp.

Erwin, T. L. 1996. Evolution at the equator: arboreal and alticolous beetles and their taxon pulses (Coleoptera: Carabidae). (Abstr. p. 18) Proc. XX Int. Cong. Entomol. Firenze, Italy.

Garwood, A. N. 1996. [ed.] Weather America. Toucan Valley Publ., Milpitas, CA, 1412 pp.

Hendrickson, D. A. and W. L. Minckley. 1985. Cienegas - vanishing climax communities of the American southwest. Desert Plants 6: 131-175.

Imms, A. D. 1948. A general textbook of entomology including the anatomy, physiology, development and classification of insects. 7th Ed. Methuen & Co., London, 727 pp.

Kavanaugh, D. H. 1979. Studies on the Nebriini (Coleoptera: Carabidae), III. New Nearctic *Nebria* species and subspecies, nomenclatural notes, and lectotype designations. Proc. Calif. Acad. Sci. 42: 87-133.

Lindroth, C. H. 1968. The ground-beetles (Carabidae excl. Cicindelinae) of Canada and Alaska, Pt. 5. Opusc. Entomol., Suppl. 33; Lund, 296 pp.

Minckley, W. L. 1984. Cuatro Cienegas fishes: research review and a local test of diversity versus habitat size. J. Ariz.-Nev. Acad. Sci. 19: 13-21.

Williams, J. E., D. B. Bowman, J. E. Brooks, A. A. Echelle, R. J. Edwards, D. A. Hendrickson and J. J. Landye. 1985. Endangered aquatic ecosystems in North American deserts with a list of vanishing fishes of the region. J. Ariz.-Nev. Acad. Sci. 20: 1-62.

Shelford, V. E. 1963. The ecology of North America; Univ. Ill. Press, Urbana, 610 pp.

CORRECTION NOTICE

The cover of the November & December 1999 issue of Entomological News indicated it was issue No. 4. This was in error. That issue was No. 5 as indicated on the masthead of inside pages. Entomological News regrets this error. H. P. B.